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ALLEGHENY NATIONAL FOREST

Region 7

TIMBER MANAGEMENT PLAN

1971 - 1965

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Plans
Timber Management

TIMBER MANAGEMENT PLAN

ALLEGHENY NATIONAL FOREST

Submited October 11 1961

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Approved October 20 1961

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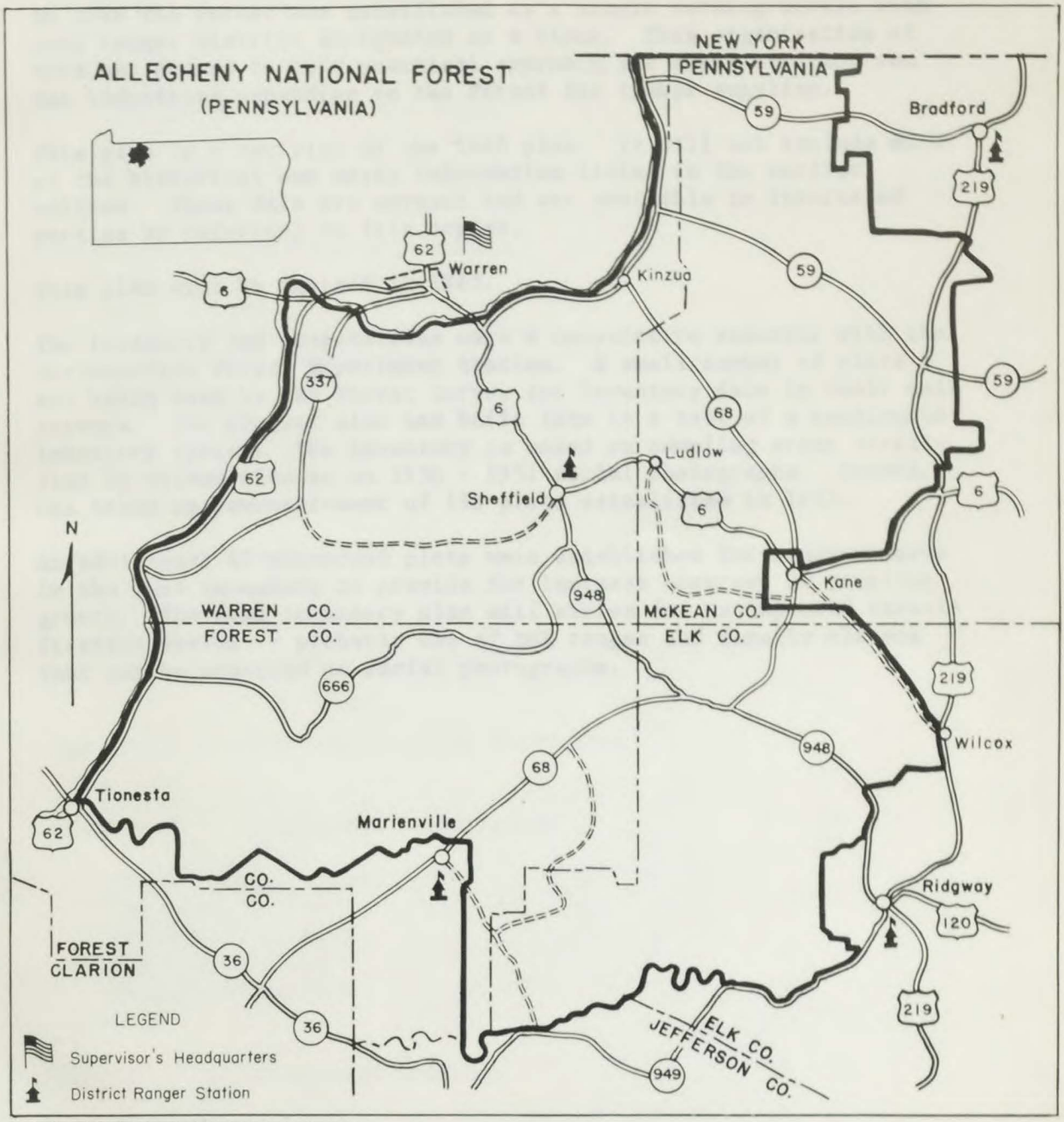

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INTRODUCTION

In 1948 the Forest was established as a single working circle with each ranger district designated as a block. This organization of area has proved to be a practical approach for administration and the industries depending on the Forest for timber supplies.

This plan is a revision of the 1948 plan. It will not include much of the historical and basic information listed in the earlier edition. These data are correct and are available to interested parties by referring to file copies.

This plan will be revised in 1965.

The inventory and computations were a cooperative endeavor with the Northeastern Forest Experiment Station. A small number of plots are being used by the Forest Survey for inventory data in their unit surveys. The project also had built into it a test of a continuous inventory system. The inventory is based on sampling areas stratified by volume classes on 1950 - 1951 aerial photographs. Growth was based on remeasurement of 113 plots established in 1947.

An additional 47 permanent plots were established for remeasurement in the next inventory to provide for increase accuracy in sampling growth. The next inventory plan will strive for an improved stratification system -- probably use of DBH ranges and density classes that can be observed on aerial photographs.

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A. Summary of Plan

1. Forest Acreage

The entire Forest is a working circle.

FOREST SUMMARY OF ACREAGE

(Thousands)

Block (District)	Commercial Forest Land	Non-Commercial and Reserved	Total
Bradford	117.9	8.6	126.5
Sheffield	129.2	3.8	133.0
Marienville	120.1	3.4	123.5
Ridgway	83.2	4.2	87.4
Working Circle	450.4	20.0	470.4

2.

FOREST SUMMARY OF VOLUME, MILLIONS

Commercial Forest Land

Block (District)	Poles 5-9,11"	Sawtimber* 9,11" +		Total	Sawtimber 9,11" +*
	Cu.Ft.	Cu.Ft.		Cu.Ft.	Bd.Ft.
		Sawlogs	Upper Stem		
Bradford	87.2	63.3	15.9	166.4	385.5
Sheffield	78.4	58.8	26.4	163.6	358.2
Marienville	94.1	24.2	12.9	131.2	147.2
Ridgway	80.6	27.2	19.4	127.2	165.3
Working Circle	340.3	173.5	74.6	588.4	1,056.2
Per Acre				1,306.	2,345.

Conversion Units - 86.38 Cu.Ft. = 1 cord of rough round wood piled 4x4x8.

* 1 Cu.Ft. = approximately 4.3 Bd.Ft.

3. Average Annual Periodic Growth

	Total	Per Acre
Working Circle	79.0 MM Bd.Ft. 1/	175.5 Bd.Ft.
	27.5 MM Cu.Ft. 2/	61.1 Cu.Ft.

1/ Hardwoods 11" DBH plus, and softwoods 9" DBH plus.
2/ All trees 5" DBH and up including sawlog size trees

4. Regulations
   a. By area
   b. 10-Year cutting cycle
   c. Rotation 110-130 years depending on forest type.

5. Annual Allowable Cut - Based on Area Control

	Acres	Expected to Yield MM Bd.Ft.	Per Acre	MM Cu.Ft.	Per Acre 1/
Reproduction Cuttings	3,100	16	5,160	10.2	3,250
Intermediate Cuttings	13,300	9	680	6.8	510
Totals & Averages	16,400	3/ 25	1,520	17.0 2/	1,030

Approximately 45,000 acres, or 10% of all compartments will be examined each year and necessary treatments prescribed.

1/ All trees 5" DBH and over
2/ Include 25 MM Bd.Ft. of sawlogs and 147,500 standard cords of rough products.
3/ Computed on basis of estimated acreage in stands over 40 years old.

B. Past Accomplishments

1. Land Changes

A total of 4,400 acres were added to the Forest property since the previous plan was placed in effect. The acreage of commercial forest, however, was reduced by 690 acres. Additional acreage was classified as non-commercial mainly because of increases in rights-of-way and more accurate data in regard to land used by the oil and gas industry under outstanding rights.

The Forest is now subdivided into four ranger districts. Each ranger district is further subdivided into compartments varying between 200 to 500 acres giving a total of 1210 compartments for the Forest.

2. VOLUME AND AREA CUTOVER

F.Y. Periods	Sawtimber MM Bd.Ft.	Products MM Bd.Ft.	Total	Estimated Area Cutover
1944 - 1948	29.1	23.2	52.3	20,300
1949 - 1953	25.8	9.7	35.5	15,300
1954 - 1958	31.6	39.6	71.2	30,900
1959 - 1960	16.7	20.1	36.8	15,000
Total 17-Year Period	103.2	92.6	195.8	81,500
Average Per Year	6.1	5.5	11.6	4,800
Annual Allowable Cut Previous Plan	9.3 1/	64.0	73.3	--

1/ 2.6 MM was contingent upon removal of full amount of products.

- -

3. Timber Stand Improvement

For the period F.Y. 1948 to F.Y. 1960 liberation was made on 3,900 acres of plantations and 31,148 acres of sale areas were treated by girdling excess cull trees, mowing understories and non-commercial improvement cuttings financed by K-V funds.

4. Planting

2,050 acres have been planted since 1947.

5. Pest Control

Damage by white pine weevil continues unabated. However, there is now promise of being able to spray DDT or malation with a helicopter at a reasonable cost and obtain successful control.

Fomes annosus has not been detected to-date in coniferous stands.

Blister rust control is on a maintenance basis and poses no serious threats.

Ash dieback is now present on the Forest, but no change in policy as to ash silviculture is warranted. This decision was made after consulting Forest Service pathologists.

6. Fire Control

For the period of 1950 - 1959 an average of 10 fires per year, burning 64 acres, have occurred on the Forest. Timber losses were insignificant and well within the objectives computed by methods used in the 1959 national fire planning project.

7. Management

Regulation in previous plans was largely confined to silvicultural practices without any steps proposed to obtain a balanced forest. There was no significant addition to the reproduction class of growing stock by regeneration cuttings in the last 20 years. In the meantime the preponderance of acreage occupied by stands 40 - 60 years old has moved forward toward a future harvest date and the mature and overmature stands have not changed in their basic status.

Interference from an excessive deer population over the years is still evident to the detriment of the range and the deer. There have been successive antlerless seasons since 1956 and the climate is now very good for this practice to continue. There is now a noticeable reduction in the herds and improved forest conditions are anticipated.

C. Objectives

1. Economic

   a. Produce on a sustained yield basis the maximum amount of clear wood.

   b. Make available to wood using industries the full allowable annual cut.

   c. Promote and assist local communities to establish new wood using industries to utilize the allowable cut.

   d. Produce a high proportion of black cherry and white ash sawlog size timber, except on existing or planned recreation areas to be developed in the next 40 years preference of certain species for economic reasons will be of secondary importance.

2. Silvicultural

   a. Based on the silvics of the major species desired, even aged management will be applied.

   b. Grow a maximum amount of clear wood in healthy stands composed of desirable species and according to capabilities of individual sites.

   c. Grow the following by major forest types:

      Maple-Beech-Birch - By volume up to 60% black cherry and white ash, 10% coniferous species in patches or single trees, remainder in other desirable species.

      Oak-Hickory - On site index 60 or better at least 50% by volume in red oak and black oak, 20% coniferous species, 30% other desirable species. On sites less than site index 60 favor white oak, chestnut oak, and white pine.

      White-Red Pine (Hemlock) - Attempt to establish 5% of commercial forest land in this type exclusive of major plantable areas such as Owls Nest, Buzzard Swamp, Salmon Creek and Wetmore. Application of this policy by compartments will necessitate in some instances discouraging conifers or causing a redistribution of the type when existing overwood is harvested. Dispersing of the type in stands of two to ten acres is important to wildlife. Use of conifers in reforesting the large open areas will predominate until planting or seeding hardwoods can be mastered.

      Aspen-Pin-Cherry - Attempt to convert to maple-beech-birch or white pine-red pine-jack pine types as site conditions and best planting or seeding techniques will permit.

3. General Management Objectives

a. Attain a balance of ten-year age classes by area. At least one full rotation period will be required. A major adjustment can be achieved over the next 50 years in an orderly fashion.

b. Work toward the following tentative growing stock levels for the working circle as a whole: 2700 cubic feet per acre in trees 5" DBH and over which will include 8000 board feet of sawtimber material in trees 11" DBH and up. Annual production is expected to be about 80 cubic feet per acre when equal distribution of age classes is achieved. This estimated production would include 300 board feet per acre of sawtimber and make possible an annual cut of 135 MM board feet of sawtimber.

c. Develop a system of LAR and LUR roads suitable for timber harvesting, recreation, and wildlife use.

d. Develop and utilize the timber resource as a leading demonstration of applied scientific forest management.

D. Coordination With Other Uses

Approved multiple use management plans for the Forest and Ranger Districts are on file and will show the steps to be taken to achieve coordination between various uses. It is, however, deemed desirable to provide in this plan guidelines for management of timber on recreation areas and point out certain wildlife management practices which have a long term bearing on timber management objectives. See paragraph 6, under Section E.

E. Management Prescriptions

1. Silvicultural System

Even aged except uneven aged in existing and potential recreation areas to be developed within 40 years.

2. Rotations

Type	Age 3/	DBH Range Expected
Maple-Beech-Birch 1/	110	14 - 26
White-Red Pine 2/	110	14 - 22
All Other	130	14 - 26

1/ Sugar maple stands 130 years
2/ Hemlock 130 years
3/ Includes 10 years for restocking. Substract 10 years to use as guideline for stand treatment.

The rotation ages are based on best information available about mean annual growth, local stand observations, and the need to cause a change in the present age class structure of the working circle. At this time the ages listed for each type are especially important as a basis to begin an active program of regeneration cuttings. The need for this is quite evident in the age class acreage table appearing in the appendix.

3. Methods of Cutting

a. Stands 1 - 20 Years Old
Artificially regenerated stands will need a minimum of one release cutting between the fifth and tenth year depending on species and developments. Weedings in natural hardwood stands are recommended whenever stand composition runs strong to sugar maple or sprout growth is seriously hindering the development of desirable seedlings. There should be 200 to 300 crop trees per acre of desirable species free to grow in the stand.

b. Stands 21 - 40 Years Old
In hardwood stands make a combination non-commercial improvement cutting and thinning. Residual stands should contain 110 to 170 crop trees per acre of desirable species. In coniferous stands make first commercial improvement cutting and thinning and prune about 100 to 150 crop trees per acre. Growing stock levels to maintain white and red pine are listed in a subsequent paragraph.

c. Stands 40 - 80 Years Old for Maple-Beech-Birch and White-Red Pine types and 40 - 120 for All Other Stands. Make first commercial improvement cutting and thinning in hardwoods and hemlock. Make successive thinnings each decade to end of rotation. The following levels of stocking in good growing stock trees 5" DBH plus will comprise the stand immediately after cutting:

	Basal Area Sq. Ft.		
Age	Maple Beech Birch	White, Red Pine	Oak, Hickory
21 - 40		80	
41 - 60	80	100	60
61 - 80	90	130	70
81 - 100	100	140	80
101- 120	110	150	90

Good growing stock trees will be selected from well formed, vigorous, healthy, clear dominant or codominant stems of desirable species in the stand. Intermediate stems of desirable tolerant species will also be acceptable where needed to obtain the desired basal area level after cutting.

Aspen-pin cherry type is scheduled for conversion by cutting aspen when mature, clear cutting poorly stocked stands and seeding or planting suitable species. Conversion will be delayed on the wet sites until satisfactory treatments can be devised.

Where removal of poor risk trees require lowering the growing stock below 45 sq. ft. areas will be clear cut to regenerate a new stand. Stands which promise only pulpwood quality material as the final crop (orchard stands) may also be clear cut for regeneration--artificial or natural. Size of such cuttings will be the same as described for stands over rotation age.

d. Stands Over Rotation Ages
These stands will be scheduled for regeneration cuttings. Some form of clear cutting is required. Such cuttings will be made in areas two to twenty acres in size. The natural stand boundary will ordinarily be the basis for laying out cutting units. Topography and the permanent road system will be secondary reasons for delineating areas on the ground. Not more than 60% of the area of an individual stand over 20 acres in size will be clear cut in one cutting period. (10 years). Based on present knowledge of seeding habits of species desired in the new stand there is no need to leave seed trees within the cutting area.

After the commercial operation is completed, additional cultural measures will be necessary. Logging operations should generally result in sufficient seed bed preparation. Slash is no problem; it may be beneficial as a deterent to deer. Undesirable understory and overwood must be killed. Whether all such trees need to be killed is a matter for experimentation. There are some indications some degree of shade might be beneficial or even necessary to obtain 200 - 300 stems per acre of desirable species within five years. This matter need not be a problem to cause deferment at this time of the management prescription described herein. Follow-up weeding will be necessary in some areas to give reproduction of seedling origin an advantage.

If sufficient desirable reproduction is not obtained within five years, artificial means of establishing satisfactory stocking must be employed.

4. Stand Priorities

a. Stands killed or badly damaged by insects, disease, fire, or wind.

b. Stands over rotation age.

c. Understocked, low quality or "orchard" stands to be converted to better species or new stands of greater density of stocking for better production provided cutting will not damage soil-water relationships and there is reasonable assurance reproduction can be obtained by artificial or natural means.

d. Stands between 30 years old for conifers and 40 years old for hardwoods and rotation age that have basal area stocking above the levels cited in a previous paragraph.

e. In hardwood stands 1 - 40 years old first priority will be given to the well stocked stands of pole size for non-commercial treatment. Second priority will be given sapling size stands in the same age class.

5. Special Treatments

While the multiple use plan includes coordinating measures it is deemed advisable to point out in this plan special features which bear directly on timber management, especially the regulation phase.

a. Wildlife
Where sufficient openings do not exist or a brush stage cannot be provided by regeneration cuttings, the younger age classes may be entered to make clear cuttings of about 2 acres in size. Such areas should be somewhat

evenly distributed so that 2% to 5% of the land unit is in a combination of brush or open stage. The openings will be placed in the stands of poorest quality and be allowed to regenerate according to the course proposed in paragraph 3 of this section. In compartments running high to acreage of orchard stands or stands promising eventually only a pulpwood crop the 2% - 5% rate may be raised to 10% to 15% in individual areas of larger size.

b. Recreation Areas
All cutting in recreation areas will be according to the tree selection method unless a catastrophe or epidemic of pests requires a different method. Cutting in roadside, waterfront, and buffer zones and between summer home lots will be permitted for removal of safety hazards, poor risk trees, volume in excess of basal area levels required for various types of stands, and improvement or retention of a satisfactory panoramic view and the unusual features which might be present. In some areas there is a need to improve the appearance of roadsides and waterfront zones by breaking up the sameness that occurs in the preponderance of 20 - 60 year old stands on the Forest. Openings larger than 0.2 acre will not be permitted except to remove safety hazards, or poor risk trees. In summer home lots, picnic areas, camping areas, organization camps, cutting will be permitted to remove safety hazards, to improve light and temperature conditions and to create variety in appearance and vegetation. In potential recreation areas to be developed within the next 10 years cutting will be done to favor specific recreation site needs. Areas to be developed 10 - 40 years hence will be treated like roadside zones.

6. In addition to providing desirable tree crops, the prescriptions outlined in this plan are expected to produce the following benefits:

a. Size of stands that can be mapped or delineated on aerial photographs as a means of controlling age class distribution in the future. Also areas less than two acres become increasingly difficult to treat for necessary stand improvement work.

b. A mosaic of conditions most favorable to wildlife, especially the anticipated results of regeneration cuttings.

c. Less intensity of soil disturbance and impact on streams in compartments or small watersheds than can be expected from regeneration cuttings in larger areas.

d. A landscape that will be pleasing to people using the Forest for recreation.

F -- MANAGEMENT CONTROLS

1. Inventories

Inventories of total volume and growth will be made every ten years. Volume estimates will be based on random sampling of stand classes stratified on aerial photographs. Growth will be based on re-measurement of permanent growth plots.

2. Compartment Examination

The working circle is subdivided into 1210 compartments varying in size from 200 to 500 acres. A total of 45,000 acres or about 10% of all compartments will be scheduled each year for examination and a treatment prescribed. Annually a three-year cutting budget will be prepared. The allocation for the first year will be the basis for developing the annual sales program. This system will provide cutting schedules three years in advance of actual sale preparation.

3. Examination of Harvest Cuttings

Five growing seasons after being cut over all regeneration cuttings will be examined for satisfactory regeneration. Satisfactory stocking will consist of 65% of quadrats stocked provided 50% of such stocking is composed of desirable species mainly of seedling sprout origin. If specific areas do not contain adequate stocking of desirable species supplemental artificial regeneration will be provided. Best species promising successful establishment at reasonable cost will be used.

4. Allowable Cut

Method of control will be areal.

	Blocks (Districts)				
	Bdfd.	Sheff.	Mville.	Ridg.	Total
Reproduction Cuttings					
Acres	1270	1050	410	370	3100
	41%	34%	13%	12%	100%
Expected to Yield					
MM Bd. Ft.	6.6	5.4	2.1	1.9	16.0
M Cords	18.4	15.2	5.9	5.5	45.0
Intermed. Cuttings					
Acres	4120	3590	3650	1940	13300
	31%	27%	27%	15%	100%
Expected to Yield					
MM Bd. Ft.	2.8	2.4	2.5	1.3	9.0
M Cords	31.7	27.7	28.2	14.9	102.5
Total Acres	5390	4640	4060	2310	16400
Expected to Yield					
MM Bd. Ft.	9.4	7.8	4.6	3.2	25.0
M Cords	50.1	42.9	34.1	20.4	147.5

The allowable cut was computed by Mathews' method of regulation for a forest containing an excess of immature stands of timber.

Timber to be cut annually will come from:

a. Regeneration Cuttings
   (1) 21,000 acres estimated to be over rotation age now.

   (2) Poor risk and orchard stands, stands which indicate a crop no better than pulpwood and stands cut for wildlife openings.

b. Intermediate Cuttings
   (1) 41-60 and 61-80 year old age classes.

Specific cutting areas will be determined by a program of compartment examination.

At the present time about one-third of the cordage available from intermediate cuttings can be absorbed by existing markets. Until such markets can be expanded, commercial operations on about two-thirds of the area 40-80 years old will consist of removing only sawlogs.

5. Marking Rules

Marking rules designed in accordance with the management prescription in this plan will be used. These rules are designed to aid in selection of trees to leave and cut in various types of stands. They will be placed in the appropriate section of the Forest Service Handbook.

6. Records

To execute this plan records will be essentially an accountability of area treated and cut over. Records will show the following facts:

a. Written records of area treated or cut over annually
   (1) Regeneration cuttings
   (2) Intermediate cuttings
   (3) Non-commercial cultural operations
   (4) Plantings or seedlings.

b. Maps
   (1) Stand conditions
   (2) Budgeted compartments by years
   (3) Area cut over in reproduction cuttings and intermediate cuttings by years
   (4) Non-commercial cultural operations needed and accomplished
   (5) Planting and seeding needed and accomplished

The procedures for maintaining such records will be found in the Forest Service Handbook. There will be additional records required for administrative purpose. These are also described in the Handbook.

G -- TIMBER DISPOSAL POLICIES

1. **Sales**

   a. Sales will be made on an area basis rather than by predetermined amounts. Seldom will there be a logical sale area providing more than 2000 M Bd. Ft. to be cut.

   b. Sales containing 600 board feet plus per acre will be organized and sold as sawlog sales.

   c. Sales containing 6 cords plus per acre and less than 600 board feet per acre of sawlogs will be made as integrated sales. There will seldom be pulpwood sales without a small amount of sawlogs included. Aspen sales will be the only important exceptions. If the local pulpwood market becomes saturated at any given time acreage may be marked for sawlogs only where the volume to be cut is less than 600 board feet per acre and is salable.

   d. Sale areas containing less than 6 cords per acre to be cut, generally are inoperable. There is no minimum volume of sawlogs for merchantability. Minimum operable volume of sawlogs depends on quality of trees marked for cutting.

   e. Until the pulpwood market can absorb that portion of the allowable cut of products material in immature stands, the pulpwood trees on harvest cutting areas in sawtimber sales will be killed by K-V procedures as needed for silvicultural reasons.

   f. Long term sales will be made only to aid in establishing a new industry which can utilize an appreciable amount of the unused allowable annual cut.

2. Point of Manufacture

There is no need at this time to declare geographical limits for primary manufacturing of timber available from the working circle. The full allowable cut of sawlogs is expected to be purchased by sawmills not more than 30 miles from the Forest boundary. Plant capacity in this area is 43MM board feet of lumber annually. Hardwood logs suitable for veneer will go to veneer mills scattered from Norfolk, Virginia, to Indianapolis, Indiana.

At present a maximum of about 35,000 cords of pulpwood, 24% of allowable cut, can be absorbed by two paper mills, each not over 65 miles from the Forest. Emphasis for new industries in the area will be placed on utilization of cordage.

Utilization Standards

	Minimum DBH and DIB		Minimum	Minimum Grade
	Hardwoods	Conifers	Length	Hardwood Logs
Sawtimber Tree	11"	9"	8'	3*
Pulpwood Tree	6"	6"	8'	
Sawlog	10"	8"	8'	3*
Pulpwood Stick	4"	4"	4'	

* Except beech for which minimum is #2 log.

Logging Methods

a. Animals and tractors will be permitted for skidding except tractors in partial cuttings will not be larger than TD 9 or equivalent. Blades mounted on tractors will be permitted provided they do not extend beyond tractor tracks.

b. Tree length skidding will be permitted only within regeneration cutting areas.

c. Winch or cable logging will be permitted.

d. No portable sawmills will be permitted on national forest land.

e. Roads and skid trails not needed for other uses will be put to sleep until the next cut by installing water bars or other erosion control measures as needed.

3. Utilization Standards

	Minimum DBH and DIB		Minimum	Minimum Grade
	Hardwoods	Conifers	Length	Hardwood Logs
Sawtimber Tree	11"	9"	8'	3*
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H. Other Forest Developments

1. Transportation

Present transportation system is now being revised to provide one mile of LAR road for each square mile of land and one mile of LUR road for each 240 acres of land. This intensity is necessary for operation of sawtimber. Short lived spur roads will be needed for recovery of pulpwood. The basic road system now consists of 712 miles of public roads. To provide complete access for intensive management, the additional mileage required will be constructed to the single lane - light duty standard except where anticipated traffic density can clearly justify a two lane road. (For present authorized system, see Table 11 .

2. Reforestation

A total of 26,000 acres of the 35,094 acres of the working circle now classified as open land is plantable. This area has been in "open" condition for 30 years because of slash fires after logging, interference by excessive deer herds, and various site factors.

The objective is to plant the 26,000 acres in the next 15 years. There is also the need to explore planting and seeding of hardwoods and determine better methods of doing the job of reforesting. Solutions to such problems are to be determined in cooperation with Research during the next eight years. During this plan period the reforestation program should be mainly trying different methods of planting and seeding and reforesting the easier sites. A program of 250 acres per year is planned.

In addition to the open land there are 10,000 acres of aspen-birch type and orchard stands to convert to higher quality production. No conversion planting or seeding is anticipated in the next five years. In cooperation with Research the best methods of conversion are to be determined during the next ten years.

The establishment of desirable stocking in regeneration cuttings is an urgent problem to solve. Based on past experience in this country and Europe, timber management plans must be designed to provide for artificial regeneration to supplement natural regeneration when it fails to become established. Best methods of accomplishing satisfactory desirable stocking in regeneration cuttings need to be determined in cooperation with Research during the next eight years.

3. Timber Stand Improvement

a. Plantations

The condition of individual stands will dictate the need and frequency of release cuttings. Generally one

such cutting will be needed between the fifth and tenth year. To qualify for treatment stands must have less than 400 crop trees per acre free to grow.

Out of a total area of 13,778 acres of plantation existing, 3,000 acres remain to be treated by a release cutting. All such work is to be completed during the plan period.

Pruning is considered profitable for red pine, spruce and larch, but lower in priority than non-commercial improvement cuttings in young natural stands. It will ordinarily be done as part of the first commercial operation which is anticipated between the 25th and 30th year. The number of trees per acre to be pruned will be between 100 - 150 crop trees.

b. Natural Stands

All sale areas will be fully treated under the K-V program to the limit of management prescriptions, legal statutes and multiple use coordination. P&M funds may be used if the K-V authorization is inadequate to complete the required treatment.

The working circle contains 134,000 acres of stands 1-40 years old of which 124,000 acres of hardwoods need a non-commercial treatment by a combination of improvement cutting and thinning. The goal is to treat this area in the next ten years. Treatment will be done on the basis of crop trees spaced 16 to 20 feet apart. It will also include pruning softwood crop trees to a height of 17 feet where possible. First priority for non-commercial treatment will be given to the maple-beech-birch type on site index 60 and better.

4. Pest Control

The following pests are active on a large scale on the Forest:

a. White Pine Weevil

Damage by this insect is great on natural and planted white pine and planted norway spruce. Recent developments in insecticides and methods of application now make possible protection at a reasonable cost.

b. European Pine Shoot Moth

This pest is present in young red pine plantations. Spraying with DDT is feasible. Infestation will be treated as attacks appear.

d. Nectria Canker

Infection of black birch and yellow birch is widespread. No special management procedures are suggested to control this disease. No practical way is known to save the birch from this organism.

e. Ash Dieback

This condition has been recognized recently. Its nature, described by pathologists, gives no cause to eliminate ash or reduce its priority in the management objectives for the working circle.

f. Fomes Annosus

Coniferous stands cut to date have not revealed the presence of this disease. The widespread occurrence of the disease elsewhere gives justification for proceeding cautiously in the first thinning program for a large acreage of red pine plantations on the Forest. An intensive survey will be made of coniferous plantations in 1961. Results of this survey will provide the basis for specific stand treatment specifications.

g. Blister Rust

This disease is being kept well under control. Only a maintenance program is required.

5. Acquisition

Priority in land purchases and exchanges will be given to obtaining title to recreation areas, interior holdings, nuisance tracts, and rights-of-way.

6. Fire Control

Timber management objectives can be met if the burned area can be confined to the par 100 acres.

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TABLE 1 - DETAILED ACREAGE SUMMARY

	Acres	Percent
Sawtimber	106,765	23.7
Heavy Poles	175,922	39.1
Light Poles, Sapings and Reproduction	132,622	29.4
Denuded and Poorly Stocked	35,094	7.8
Total Commercial Forest	450,403 1/	100.0
Roads	2,428	
Rights-of-Way	1,626	
Fishing Streams and Lakes	294	
Wildlife	4,710	
Special Land Uses	828	
Recreation	4,563	
Kane Experimental Forest	1,700	
Irvine Demonstration Forest Area	569	
Oil Wells	3,300	
Total Non-Commercial Area	20,018	
Grand Total	470,421	

1/ 7.0% of area in planned recreation areas listed in recreation resource survey.

TABLE 2 - DETAILED SUMMARY OF VOLUME

Total Volume

	Millions				Per Acre	
	Cu.Ft.	%	Bd.Ft.	%	Cu.Ft.	Bd.Ft.
Sawtimber	162.9	27.7	374.1	35.4	1526	3504
Heavy Poles	279.5	47.5	536.9	50.8	1589	3052
Light Poles, Saplings, Reproduction	134.6	22.9	141.9	13.5	1015	1072
Denuded & Poorly stocked	11.4	1.9	3.3	0.3	325	93
Total	588.4	100.0	1056.2	100.0	1306	2345

6.7% of total bd.ft. volume is in planned recreation areas listed in the recreation resource survey.

TABLE 3 - DETAILED SUMMARY OF PERIODIC ANNUAL GROWTH PER ACRE

(1947 - 1957)

	Board Feet 1/			
	Gross Per Acre Per Year	%	Net Per Acre Per Year	%
Increment on Initial Growing Stock	92.6	5.67	86.2	5.28
Ingrowth into sawtimber size	89.3	5.59	89.3	5.59
Total	181.9	11.26	175.5	10.87
	Cubic Feet 2/			
Increment on Initial Growing Stock	51.0	5.53	46.9	5.08
Ingrowth into pole size	14.2	1.53	14.2	1.53
Total	65.2	7.06	61.1	6.61

1/ Board foot increment is for trees of sawtimber size, 9"+ for conifer and 11"+ for hardwood.

2/ Cubic foot increment is for all trees 5"+, including sawtimber size. Gross cubic foot growth, including ingrowth, of sawtimber size trees was 39 cubic feet; net was 37.

TABLE 4 - CHANGE IN ESTIMATED TOTAL VOLUME BETWEEN 1938 AND 1957

Inventory Period	Commercial Acres - M	Total M Bd.Ft.	Bd.Ft. Per Acre
1938 - 1940	406.7	244,050	600
1947	451.1	552,900	1230
1957	450.4	1,056,200	2345

TABLE 5 - PERCENT OF TOTAL NET MBF BY SPECIES AND TIME OF INVENTORY

	Percent		
	1938-1940	1947	1957
Black Cherry	17.2	32.3	41.9
Red Maple	7.0	12.4	15.4
Red Oak	1.9	10.0	10.7
Hemlock	16.9	16.7	8.3
Beech	30.6	10.1	8.0
Sugar Maple	14.2	4.6	5.4
Cuc-YP-Ba	1.8	1.8	2.4
White Oak	1.0	4.9	2.2
Birch	3.0	3.4	2.1
Ash	5.0	1.0	1.4
White Pine	0.8	1.0	1.1
Other Species	0.6	1.8	1.1
	100.0	100.0	100.0

TABLE 6 - PERCENT OF TOTAL M CU. FT. AND NUMBER OF TREES BY SPECIES - 1957 INVENTORY

	% M Cu. Ft.	% Number Growing Stock Trees
Black Cherry	33.1	26.4
Sugar Maple	8.3	11.7
Red Maple	22.4	25.4
Beech	5.1	4.6
Hemlock	4.3	3.9
Ash	2.0	2.2
Cuc.-YP-Ba.	2.7	1.9
White Oak	1.9	1.5
Red Oak	7.6	4.8
White Pine	0.4	0.2
Birch	5.6	8.5
Other Species	6.3	8.9
	100.0	100.0

TABLE 7 - NUMBER OF TREES PER ACRE 1957 INVENTORY

(excludes stand size class 4 - open land)

DBH	Number Growing Stock Trees	Number Cull Trees	Total Number Trees
6	82.99	7.23	90.22
8	54.12	2.00	56.12
10	29.11	0.76	29.87
12	13.07	2.03	15.10
14	7.92	0.90	8.82
16	4.58	0.65	5.23
18	1.97	0.96	2.93
20	0.81	0.22	1.03
22	0.48	0.15	0.63
24	0.19	0.12	0.31
26	0.05	--	0.05
28	--	0.03	0.03
30	--	--	--
32	--	0.03	0.03
Total	195.29	15.08	210.37
Total Basal Area Sq. Ft.	83.44	10.24	93.68

TABLE 8 - PERCENT OF AREA BY MAJOR FOREST TYPES

Forest Types	Percent of Total Area 1938 Survey	1957 Survey
White-Red-Jack Pine (red pine plantations, hemlock and white pine)	3.0	4.0
Oak-Hickory (mostly red oaks & wh. oak)	13.1	12.5
Aspen-Birch (incl. pin cherry, red maple, black cherry)	7.8	6.0
Maple-Beech-Birch (incl. bl. cherry)	68.7	70.0
Other (open)	7.4	7.5
	100.0	100.0

1938 survey based on mapping in a line plot cruise.
1957 survey based on 325 random sample plots.

Changes reflected are normal. The coniferous type increased from additional plantations established and emergence of dominant and codominant hemlock and white pine in some stands. Aspen-Birch type was expected to decrease as aspen reached maturity and some acres were cut over for pulpwood.

TABLE 9 - PERCENT OF AREA BY SITE INDEX CLASSES

Site Index	Percent of Total Area
30	1.0
40	1.0
50	10.0
60	32.0
70	31.0
80	22.0
90	2.0
100	1.0
	100.0

Site index based on Defler's tables for maple-beech-birch and aspen-birch types and Schnur's curves for the other types. Site index is based on total height at 50 years of age.

TABLE 10 - STAND & STOCK TABLE

PER ACRE 1/

DBH	No. Growing Stock Trees	Cu.Ft.	Bd. Ft.
6	90.0	236	
8	42.9	242	
10	23.2	250	
12	11.9	184	693
14	5.8	132	523
16	3.0	98	404
18	1.52	69	291
20	0.76	44	183
22	0.38	24	121
24	0.20	18	82
26	0.10	9	48
Total	179.76	1306	2345

1/ All commercial forest land, including stand size 4, denuded and poorly stacked or open land.

TABLE 11 - TRANSPORTATION

Road System

Type of Road	Miles Within Proclamation Boundary						
	National Forest Land *			Private Land			
	N.F. Maint.	Other Public	Indust.	N. F. Maint.	Other Public	Indust.	Total
Paved	2.7	128.1			181.1		311.9
Gravel	179.0	19.6		30.0	63.7		292.3
Dirt		20.6	85.0		34.9	20.0	160.5
ORB	44.0						44.0
F. S.	8.0						8.0
Total	233.7	168.3	85.0	30.0	279.7	20.0	816.7
		487.0			329.7		

* Either abutting or through national forest land.

The present authorized road system is as follows based on most recent 5610-R9 report:

Road Class	Existing Roads	Non-Existent Roads	Total
	Mi.	Mi.	Mi.
LAR	281	610	891
LUR	8	64	72
IDR	70	11	81
Total	359	685	1044
Forest Highway	353	-	353
Private Companies	105	-	105
	817	685	1502

This is inadequate and mileage will be increased when present limitation is lifted.

Railroad System

Name of Railroad	Route Miles**
New York Central - Warren to Irvine	6
Pennsylvania Railroad Company - Warren to Tionesta	35
- Warren to Wilcox	37
Baltimore & Ohio - Mt. Jewett to Marienville	40
- Bradford to Lewis Run *	6
- Ridgway to Carman *	7
	131

* Erie - Lackawanna RR operates trains over same mileage under trackage rights.

** Only route miles having sidings useful for loading forest products included.

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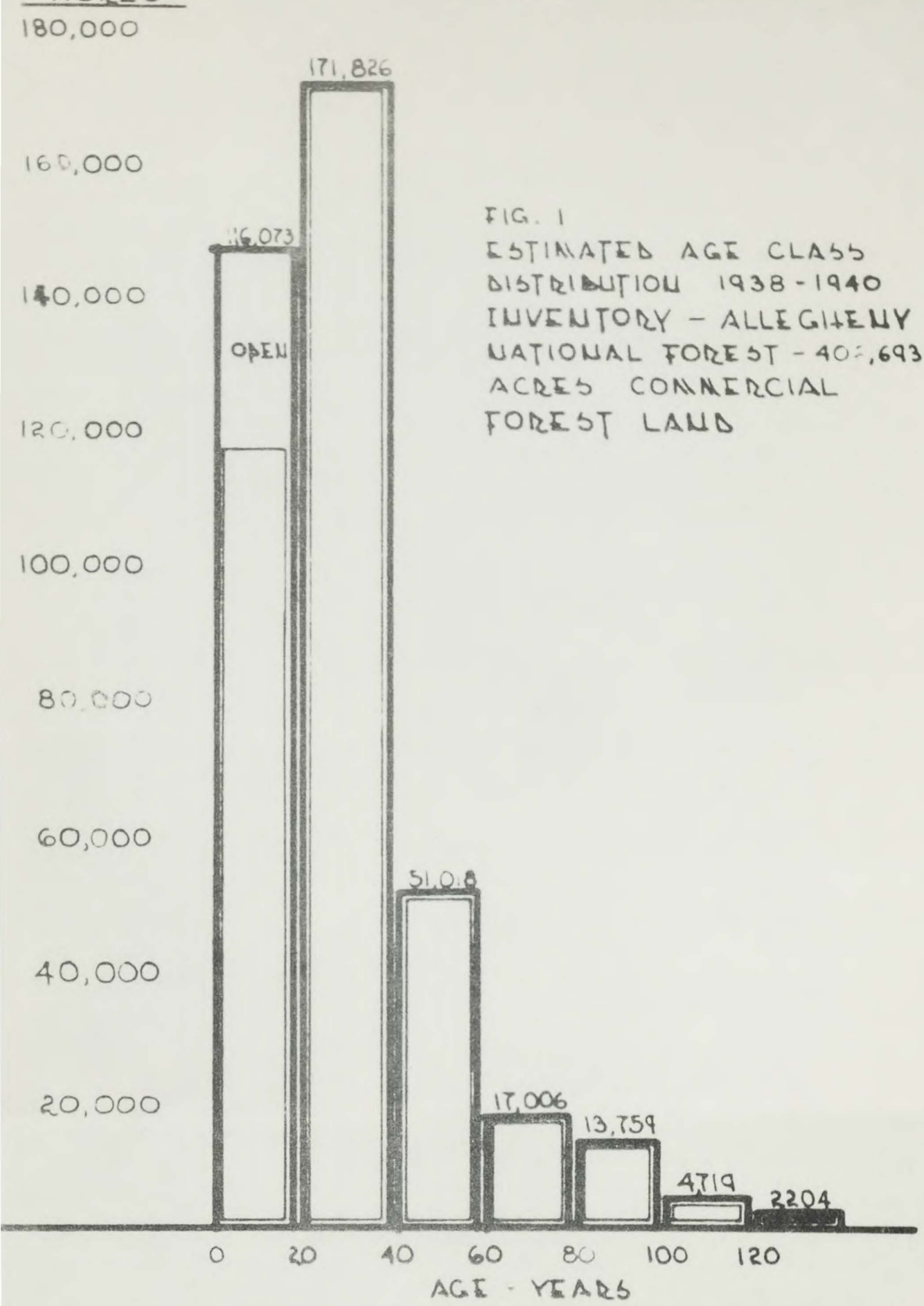

FIG. 1
ESTIMATED AGE CLASS DISTRIBUTION 1938-1940 INVENTORY - ALLEGHENY NATIONAL FOREST - 402,693 ACRES COMMERCIAL FOREST LAND

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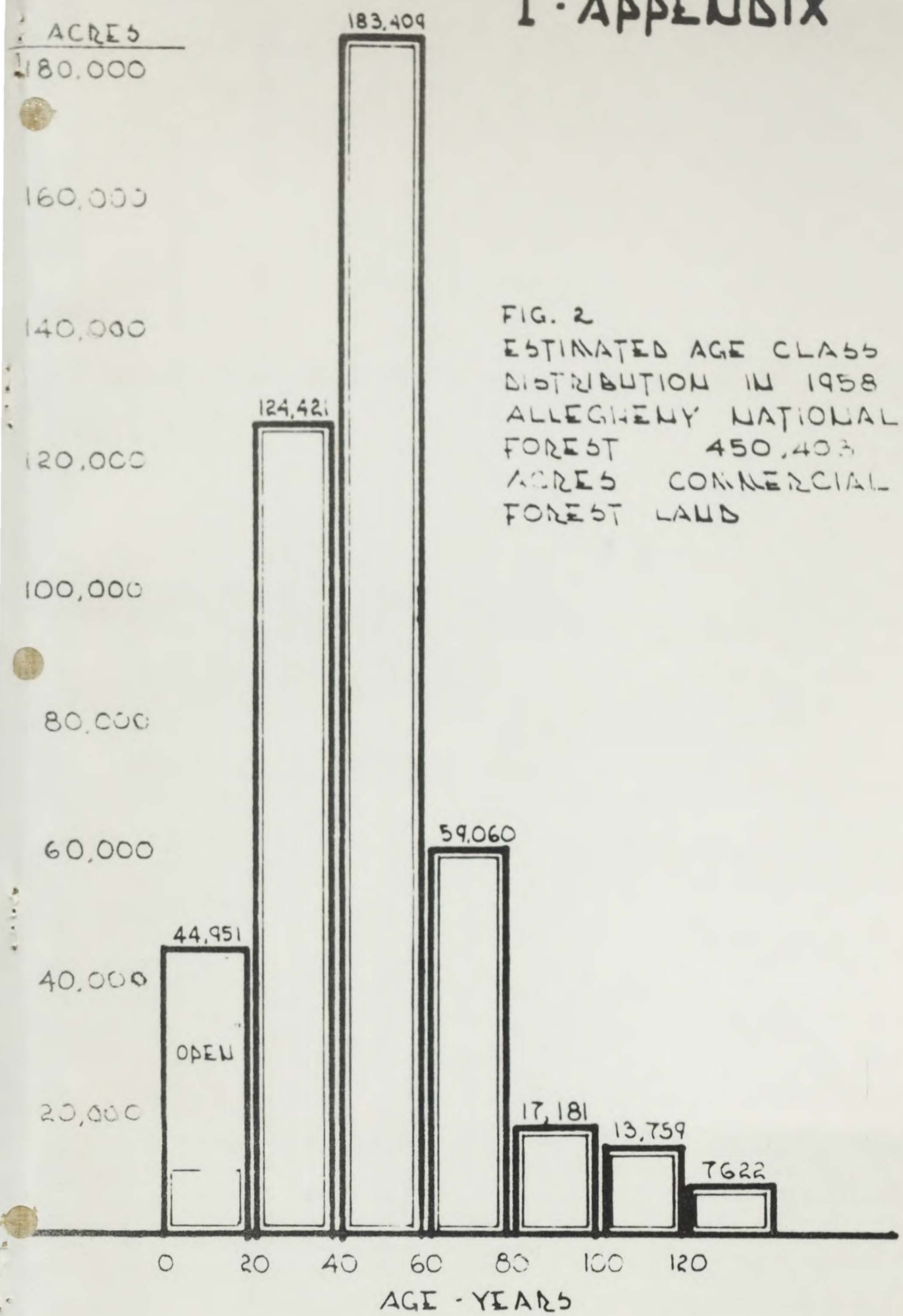

FIG. 2
ESTIMATED AGE CLASS DISTRIBUTION IN 1958 ALLEGHENY NATIONAL FOREST 450,403 ACRES COMMERCIAL FOREST LAND